

IN THE CLAIMS

The following is a complete listing of the claims, and replaces all earlier versions and listings.

1. (Currently Amended) An image processing apparatus connected to at least an external controller via an external bus, comprising:

first image processing means for processing input image data and for generating first and second image data from the input image data;

image storage means for storing the first and second image data processed by said first image processing means;

second image processing means for processing the first and second image data read from said image storage means;

output control means for outputting image data processed by said first second image processing means via the external bus;

preservation means for preserving a status of the result of processing on the first and second image data by said first second processing means; and

pseudo master means for controlling a preservation operation by said preservation means, in correspondence with output completion of the first image data output by said output control means,

wherein said first image processing means generates the second image data while said output control means outputs the first image data processed by said second image processing means, and said second image processing means starts processing the second image data, in correspondence with output completion of the first image data by said output control means.

2. (Currently Amended) The image processing apparatus according to claim 1, wherein one or both of said output control means and said pseudo master means start output processing on ~~subsequent~~ the second image data stored in said image storage means, in correspondence with output completion of the first image data ~~output~~ by said output control means.

3. (Currently Amended) The image processing apparatus according to claim 1, wherein said ~~first image processing means generates and processes plural items of~~ image data from one item of the input image data, wherein said preservation means preserves the status of the result of image data processing corresponding to each of the ~~plural items~~ first and second of image data ~~generated and processed from one item of the~~ input image data.

4. (Currently Amended) The image processing apparatus according to claim 3, wherein said pseudo master means controls the preservation operation by said preservation means, in correspondence with the image data output completion by said output control means of ~~one of the plural items of~~ the first of image data processed by said ~~first~~ second image processing means, for one frame, to the external bus.

5. (Currently Amended) The image processing apparatus according to claim 3, wherein said output control means issues an interrupt request to the external controller when transfer of all the ~~plural items~~ the first and second image data of one frame, ~~generated and processed from one item of the input image data~~ processed by said second image processing means to the external bus is completed,

wherein the external controller performs reading of the result of processing preserved in said preservation means and setting for image processing on the next frame, in correspondence with the interrupt request.

6. (Currently Amended) The image processing apparatus according to claim 1, further comprising arbitration means for arbitration between an access request from the external controller and the preservation operation of the status of the result of processing by said pseudo master means and said preservation means.

7. (Currently Amended) The image processing apparatus according to claim 1, wherein said first image processing means includes first processing means for generating the first image data and second processing means for generating the second image data.

8. (Original) The image processing apparatus according to claim 7, wherein the first image data has a resolution higher than that of the second image data.

9. (Currently Amended) The image processing apparatus according to claim 1, wherein said first image processing means performs filter processing on the input image data, while the second image processing means performs compression coding processing on the first image data.

10. (Original) The image processing apparatus according to claim 9, wherein said compression coding processing is coding processing in conformity with JPEG or JPEG 2000 coding method.

11. (Currently Amended). An image processing method in an image processing apparatus connected to at least an external controller via an external bus, comprising:

a first image processing step of processing input image data and of generating first and second image data from the input image data;

an image storage step of storing the first and second image data processed in said first image processing step into an image memory;

a second image processing step of processing the first and second image data read from the image memory;

an output control step of outputting image data processed in said first second image processing step via the external bus;

a preservation step of preserving a status of the result of processing on the first and second image data processed in said first second processing step; and

a pseudo master step of controlling a preservation operation in said preservation step, in correspondence with output completion of the first image data output in said output control step,

wherein in said first image processing step, the second image data is generated while the first image data processed by said second image processing step is output in said output control step, and said second image processing step starts processing

of the second image data, in correspondence with output completion of the first image data in said output control step.

12. (Currently Amended) The image processing method according to claim 11, wherein in one or both of said output control step and said pseudo master step, output processing on subsequent the second image data stored in said image storage step is started, in correspondence with output completion of the first image data output in said output control step.

13. (Currently Amended) The image processing method according to claim 11, wherein at said first image processing step, ~~plural items of image data are internally generated and processed from one item of the input image data,~~

wherein in said preservation step, the status of the results of the first and second image data processing, corresponding to each of the ~~plural items~~ the first and second image data generated and processed from one item of the input image data, is preserved.

14. (Currently Amended) The image processing method according to claim 13, wherein in said pseudo master step, the preservation operation in said preservation step is controlled, in correspondence with the ~~image data~~ output completion in said output control step of ~~one of the plural items~~ the first and second image data processed in said first second image processing step, for one frame, to the external bus.

15. (Currently Amended) The image processing method according to claim 13, wherein in said output control step, an interrupt request is issued to the external controller, when transfer of ~~all the plural items~~ the first and second image data of one frame, processed in said second image processing step generated and processed from one item of the input image data to the external bus is completed,

wherein the external controller performs reading of the result of processing preserved in said preservation step and setting for image processing on the next frame, in correspondence with the interrupt request.

16. (Currently Amended) The image processing method according to claim 11, further comprising an arbitration step of performing arbitration between an access request from the external controller and said preservation operation of the status of the result of processing in said pseudo master step and said preservation step.

17. (Currently Amended) A storage computer-readable medium holding storing computer-readable program code for executing the image processing method in according to claim 11.

18. (Currently Amended) A program stored on a computer-readable medium which, when executed by a computer, performs ~~for executing~~ the image processing method ~~[[in]]~~ according to claim 11 ~~by a computer~~.

19. (New) An apparatus according to claim 1, wherein said preservation means preserves the status of the result of processing the first image data, and

said output control means requests the external controller to read the status of the result of processing the second image data by said second image processing means, and the status of the result of processing the first image data by said second image processing means, which is preserved by said preservation means.

20. (New) A method according to claim 11, wherein in said preservation step, the status of result of processing first input image data is preserved, and in said output control step, the external controller is requested to read the status of the result of processing second input image data in said second image processing step, and the status of the result of processing first input image data in said second image processing step, which is preserved in said preservation step.

21. (New) An image processing apparatus connected to at least an external controller via an external bus, comprising:

- first image processing means for processing input image data;
- image storage means for storing image data processed by said first image processing means;
- second image processing means for processing image data read from said image storage means;
- output control means for outputting image data processed by said second image processing means via the external bus;
- preservation means for preserving an amount of the result of processing on the image data by said second processing means; and

pseudo master means for controlling a preservation operation by said preservation means, in correspondence with image data output by said output control means.

22. (New) An apparatus according to claim 21, wherein said second image processing means processes second input image data read out from said image storage means, based on first input image data output by said output control means.

23. (New) An apparatus according to claim 21, wherein said preservation means preserves the status of the result of processing first input image data, and

said output control means requests the external controller to read the status of the result of processing second input image data by said second image processing means, and the status of the result of processing first input image data by said second image processing means, which is preserved by said preservation means.

24. (New) An image processing method in an image processing apparatus connected to at least an external controller via an external bus, comprising:

a first image processing step of processing input image data;
an image storage step of storing image data processed in said first image processing step into an image memory;
a second image processing step of processing image data read from the image memory;

an output control step of outputting image data processed in said second image processing step via the external bus;

a preservation step of preserving an amount of the result of processing on the image data processed in said second processing step; and

a pseudo master step of controlling a preservation operation in said preservation step, in correspondence with image data output in said output control step.

25. (New) A method according to claim 24, wherein in said second image processing step, second input image data read out from the image memory is processed, based on first input image data output in said output control step.

26. (New) A method according to claim 24, wherein in said preservation step, the status of the result of processing first input image data is preserved, and

in said output control step, the external controller is requested to read the status of the result of processing second input image data in said second image processing step, and the status of the result of processing first input image data in said second image processing step, which is preserved in said preservation step.